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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,234	09/12/2003	John A. Moon	CV-0038A	6836

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EXAMINER	
LAVARIAS, ARNEL C	
ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/661,234	MOON ET AL.	
	Examiner	Art Unit	
	Arnel C. Lavarias	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *7/8/04,6/22/04,6/7/04,9/12/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/8/04,9/12/03* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/22/04,6/7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. It is noted that this application appears to claim subject matter disclosed in prior Application No. 10/645,689, filed 8/20/03. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C.

119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Information Disclosure Statement

2. With respect to the information disclosure statement filed 6/22/04, citations of Pages 2-4 were lined through since these were previously cited in the information disclosure statement filed 6/7/04. Further, the citation of Page 5 was lined through since that citation was improperly listed (i.e. publication number and associated identifiers do not match).

Drawings

3. The drawings were received on 9/12/03 and 7/8/04. These drawings are objected to for the following reason(s) as set forth below.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

Figure 2- Reference numeral 21

Figure 6- Reference numerals 122, 124, 126, 128, 130

Figure 7- Reference numerals 120, 122, 124, 126, 128, 130, 132

Figure 9- Reference numeral 89

Figure 10a- Reference numeral 40

Figure 11- Reference numerals 204, 206

Figure 14- Reference numeral 270

Figure 19- Reference numerals 321, 309

Figure 23- Reference numeral 703

Figure 28- Reference numerals 212, 214, 216, 218

Figure 31- Reference numeral 522

Figure 36- Reference numeral 80, 90

Figure 38- Reference numeral 82, 84, 86, 88

Figure 41a- Reference numeral 565

Figure 41e- Reference numeral 576

Figure 47- Reference numeral 632, 630

Figure 52- Reference numerals 686, 682

Figure 53- Reference numerals 699, 683, 697, 681, 698.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

Figure 6- Reference numeral 27 (See Page 9, line 21)

Figure 10a- Reference numeral 90 (See Page 11, line 10)

Figure 14- Reference numeral 290 (See Page 20, line 5)

Figure 15- Reference numeral 290 (See Page 19, line 28)

Figure 22- Reference numeral 408 (See Page 23, line 18)

Figure 28- Reference numerals 8, 207 (See Page 31, line 9)

Figures 36 and 38- Reference numeral 20 (See Page 28, line 10)

Figure 41a- Reference numeral 560 (See Page 29, line 27)

Figure 43- Reference numeral 581 (See Page 31, line 4).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet *within the range of 50 to 150 words*. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7. The abstract of the disclosure is objected to because of the following informality:

Abstract is too long.

Correction is required. See MPEP § 608.01(b).

8. The disclosure is objected to because of the following informalities:

Page 1, lines 8-9, and line 11- appropriate publication serial numbers should be supplied

Page 6, line 27- insert 'be' after 'also'

Page 15, line 27- 'te' should read 'the'

Page 25, line 17- 'un-defracted' should read 'un-diffracted'

Page 28, line 2- '452' should read '454'

Page 35, line 16- '474' should read '674'.

Appropriate correction is required.

Claim Objections

9. Claim 11 is objected to because of the following informalities:

Claim 11 recites the limitation "... said substrate has a grating region where said grating and ...". It is believed that this limitation is incomplete. The Examiner has taken this limitation to mean "... said substrate has a grating region where said grating *is located* and ...".

Appropriate correction is required.

Double Patenting

10. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope.

The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 18-19 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of Claims 18-19 of copending Application No. 10/645689. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

13. Claims 1-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-17 of copending Application No. 10/645689. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 1-17 of copending Application No. 10/645689 similarly discloses an optical identification element, including the limitations as set forth in Claims 1-17 of the instant application (Claims 2-17 of the instant application are identical to Claims 2-17 of copending Application No. 10/645689; and Claim 1 of copending Application No. 10/645689 discloses the optical output signal being indicative of a code *in said substrate*.).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

14. Claims 1-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-19 of copending Application No. 10/763995 (U.S. Patent Application Publication US 2004/0263923 A1). Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 1-19 of copending Application No. 10/763995 similarly discloses an optical identification element, microparticle, and method for reading a code in an optical identification element, the identification element, microparticle and method including the limitations as set forth in Claims 1-19 of the instant application (Claims 2-17 of the instant application are identical to Claims 2-17 of copending Application No. 10/763995; and Claim 1 of copending Application No. 10/763995 discloses the optical identification element attached to a chemical as well as the optical substrate, and optical output signal being indicative of a code *in said substrate*; Claim 18 of copending Application No. 10/763995 discloses the optical identification element attached to a chemical as well as the optical substrate; and Claim 19 of copending Application No. 10/763995 discloses similar method steps and includes the step of attaching a chemical to the substrate).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1, 11, 14-15, 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Grot et al. (U.S. Patent No. 6005691).

Grot et al. discloses an optical identification element/microparticle (See Figures 3A, 3B, 5A, 5B), the element/microparticle comprising an optical substrate (See 109 in Figure 3B); at least a portion of the substrate having at least one diffraction grating disposed therein (See 111 in Figure 3B), the grating having at least one refractive index pitch superimposed at a common location (it is noted that features 111 appear as a variation of refractive index that alternates between the refractive index of substrate 109 and the refractive index of 117 when taken along a line parallel to the substrate surface, located in the plane of Figure 3B, and drawn bisecting the grating structure 111); and the grating providing an output optical signal indicative of a code (See 215, 221, 223 in Figure 5A; col. 8, line 23-col. 10, line 48) when illuminated by an incident light signal. Grot et al. additionally discloses the substrate having an end cross section geometry and a side view geometry that are both rectangular (See Figure 3A); and the substrate having a grating region where the grating is located and a non-grating region where the grating is not located at, and the substrate has a plurality of grating regions (See Figure 3A). Further, Grot et al. discloses a method for reading a code in an optical identification

element (See Figures 3A, 3B, 5A, 5B) comprising obtaining an optical substrate (See 109 in Figure 3B) at least a portion of which having a diffraction grating (See 111 in Figure 3B) with one or more refractive index pitches superimposed at a common location (it is noted that features 111 appear as a variation of refractive index that alternates between the refractive index of substrate 109 and the refractive index of 117 when taken along a line parallel to the substrate surface, located in the plane of Figure 3B, and drawn bisecting the grating structure 111); and illuminating the substrate with incident light (See for example 201 in Figure 5A), the substrate providing an output light signal (See 221, 223 in Figure 5A); reading the output light signal and detecting a code therefrom (See 211, 213 in Figure 5A).

17. Claims 1-3, 5, 8-9, 11, 13-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Frankel (U.S. Patent No. 6096496), of record.

Frankel discloses an optical identification element/microparticle (See Figures 1, 8-15, 17) comprising an optical substrate (See 190, 125, 160 in Figure 1A); at least a portion of the substrate having at least one diffraction grating disposed therein (See for example 902a-f in Figure 9; 1003a-f in Figure 10; 1103a-f in Figure 11; 1204a-f in Figure 12; 1401a-e in Figure 14; 1506a-i in Figure 15), the grating having at least one refractive index pitch superimposed at a common location (it is noted that features appear as a variation of refractive index that alternates between the refractive indices of the materials comprising the grating); and the grating providing an output optical signal indicative of a code (See 180 in Figure 1A; col. 11, line 44-col. 12, line 43) when illuminated by an incident light signal (See 170 in Figure 1A). Frankel additionally discloses the substrate

being made of glass (See col. 11, lines 27-43); the code comprising a plurality of bits, numbering for example 4 or 20 (See col. 11, line 44-col. 12, line 43), each bit having a plurality of states (See also Figures 1A-B; 9-12, 14-15, 17); the dimensions of the bead, and hence the substrate, being less than 2 mm (See col. 6, lines 65-67); the substrate having a reflective coating disposed thereon (See for example 904a-f in Figure 9); the substrate having protruding sections (See for example Figures 9-12; 17); the substrate having an end and side view geometry that are circular or elliptical (See for example Figures 1A-B); a portion of the substrate having a 3-D shape of a cube with unequal sides or a sphere with nonuniform diameter (See for example 160, 190 in Figures 1A-B); and the substrate having a grating region where the grating is located and a non-grating region where the grating is not located (See for example Figures 9-12; 14-15; 17); the substrate having a plurality of grating regions (See for example Figures 9-12; 14-15; 17). Further, Frankel discloses a method for reading a code in an optical identification element (See Figures 1, 8-15, 17-20) comprising obtaining an optical substrate (See 190, 125, 160 in Figure 1A; Figures 18-20) at least a portion of which having a diffraction grating (See for example 902a-f in Figure 9; 1003a-f in Figure 10; 1103a-f in Figure 11; 1204a-f in Figure 12; 1401a-e in Figure 14; 1506a-i in Figure 15; Figures 18-20) with one or more refractive index pitches superimposed at a common location (it is noted that features appear as a variation of refractive index that alternates between the refractive indices of the materials comprising the grating); and illuminating the substrate with incident light (See for example 1801 in Figure 18), the substrate providing an output light signal (See

output light routed through element 1803 in Figure 18); reading the output light signal and detecting a code therefrom (See 1804, 1805, 1806 in Figure 18).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel in view of Ravkin et al. (U.S. Patent Application Publication US 2003/0129654 A1).

Frankel discloses the invention as set forth above in Claim 1, except for the number of pitches being indicative of the number of bits in the code. However, Ravkin et al. teaches conventional coded particles for analysis of samples (See for example Abstract; Figures 1, 12-25, 33-40; 48-51), wherein the coded particle may take on the shape (See Paragraphs 0114-0121) of, for example, a disk (i.e. a flattened cylinder) (See Figures 18-19), a sphere (See Figure 20), or an elongated cylinder (See for example Figures 17, 24, 38). Also, the number of bits in the code imparted on the particle may be based on the number of distinctly different gratings on the particle (See Paragraphs 0092-0107; 0318-0405). In particular, Ravkin et al. teaches the use of diffraction-grating based features for coding the particles (See Paragraphs 0318-0405; Figures 33-51), wherein the pitches or groove spacings of the various diffraction grating features may be varied to provide distinct measurable optical property for the different bits in the code (See for example

Figures 34-50, wherein various regions of the identification element have diffraction gratings of distinct groove spacing.). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the number of pitches being indicative of the number of bits in the code, as taught by Ravkin et al., in the optical identification element/microparticle of Frankel, for the purpose of simplifying detection of the particular code (i.e. diffracted light from the particle) and reducing the time taken to correlate the diffracted light from a particular identification element to a particular code.

20. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel in view of Ravkin et al.

Frankel discloses the invention as set forth above in Claim 1, except for the substrate having a cylindrical shape. However, the use of cylindrical shaped substrates in such identification element applications is conventional in the art. For example Ravkin et al. teaches conventional coded particles for analysis of samples (See for example Abstract; Figures 1, 12-24, 33-40; 48-51), wherein the coded particle may take on the shape (See Paragraphs 0114-0121) of, for example, a disk (i.e. a flattened cylinder) (See Figures 18-19), a sphere (See Figure 20), or an elongated cylinder (See for example Figures 17, 24, 38). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the substrate of the optical identification element/microparticle of Frankel have a cylindrical shape, as taught by Ravkin et al., to simplify analysis in particular detection applications, such as flow-based or static detection.

21. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel.

Frankel discloses the invention as set forth above in Claim 1, except for the grating being a blazed grating. However, as is known in the art, blazed gratings are a particular class of diffraction gratings in which the geometry of the grooves are manipulated to control to the variation and magnitude of the diffracted light. One skilled in the art would have known to utilize a blazed grating for the diffraction grating due to the advantages provided by blazed gratings, i.e. enhanced diffraction efficiency in particular diffraction orders. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the grating in the optical identification element/microparticle of Frankel be a blazed grating, for the purpose of enhancing the diffraction efficiency of the diffraction grating, thus increasing the signal-to-noise ratio of the detected optical signal.

22. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel in view of Yguerabide et al. (U.S. Patent No. 6214560).

Frankel discloses the invention as set forth above in Claim 1, except for the substrate having a magnetic or electric charge polarization. However, constructing the bead out of a material having a magnetic or electric charge polarization is well known in the art. For example, Yguerabide et al. teaches a method and apparatus for detecting one or more analytes by detecting the light scattered from the particles after the analytes have associated with the particles (See for example Abstract; Figures 21-24, 28-30). In particular, the particles are made of a material having electric or magnetic polarization to allow them to be oriented in the presence of an applied electric or magnetic field (See col.

12, lines 5-43; col. 40, lines 44-65; col. 88, line 24-col. 89, liner 20). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the substrate having a magnetic or electric charge polarization, as taught by Yguerabide et al., in the optical identification element/microparticle of Frankel, for the purpose of facilitating or optimizing readout of the codes in the element/particle by proper alignment of the element/particle.

23. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel in view of Ravkin et al.

Frankel discloses the invention as set forth above in Claim 1, except for the substrate having a geometry having holes therein. However, Ravkin et al. teaches conventional coded particles for analysis of samples (See for example Abstract; Figures 1, 12-25, 33-40; 48-51), wherein the coded particle may take on the shape (See Paragraphs 0114-0121) of, for example, a disk (i.e. a flattened cylinder) (See Figures 18-19), a sphere (See Figure 20), or an elongated cylinder (See for example Figures 17, 24, 38). In particular, Ravkin et al. teaches that the substrate of the optical identification element/microparticle may include various surface features, including grooves, ridges, holes, bumps, depressions, dimples, etc. (See Paragraphs 0129-0135). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the substrate of the optical identification element/microparticle of Frankel have a geometry having holes therein, as taught by Ravkin et al., to facilitate sample and reagent association and retention and particle manipulation during the assay process.

Conclusion

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 8:30 AM - 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Arnel C. Lavarias
Patent Examiner
Group Art Unit 2872
1/10/05